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Tablet and E-book reader Ownership Nearly Double Over the Holiday Gift-Giving Period

Between mid-December and early January, the number of owners of each device rose from 10% to 19%. Overall, 29% of adults own at least one of them

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http://pewinternet.org/Reports/2012/E-readers-and-tablets.aspx

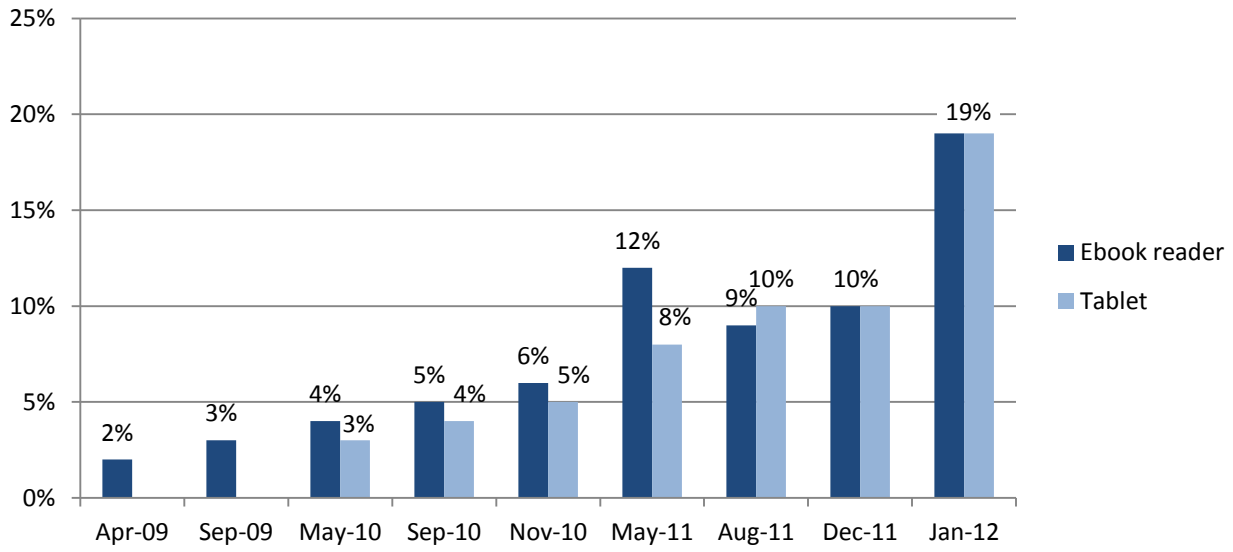
Tablet and e-book reader ownership surge in the holiday gift-giving period

The share of adults in the United States who own tablet computers nearly doubled from 10% to 19% between mid-December and early January and the same surge in growth also applied to e-book readers, which also jumped from 10% to 19% over the same time period.

The number of Americans owning at least one of these digital reading devices jumped from 18% in December to 29% in January.

Big jump in gadget ownership over the holidays

% of adults who own tablet computers and e-book readers



Source: The Dec. 2011 and Jan. 2012 results shown here are from three new surveys by the Pew Research Center's Internet & American Life Project .The Dec. 2011 results are from a survey of 2,986 people age 16 and older conducted November 16-December 21, 2011. The survey was conducted in English and Spanish and on landline and call phones. The margin of error is +/- 2 percentage points. The Jan. 2012 results are from a combination of two surveys, one conducted January 5-8, 2012 of 1,000 adults age 18 and older and the other conducted January 12-15, 2012 among a sample of 1,008 adults. The overall margin of error in the combined Jan. 2012 dataset is +/- 2.4 percentage points. The January surveys were conducted on landline and cell phones. They were conducted only in English.

These findings are striking because they come after a period from mid-2011 into the autumn in which there was not much change in the ownership of tablets and e-book readers. However, as the holiday gift-giving season approached the marketplace for both devices dramatically shifted. In the tablet world, Amazon's Kindle Fire and Barnes and Noble's Nook Tablet were introduced at considerably cheaper prices than other tablets. In the e-book reader world, some versions of the Kindle and Nook and other readers fell well below $100.

These results come from ongoing surveys by the Pew Research Center's Internet & American Life Project aimed at tracking growth in the ownership of both devices. A pre-holiday survey was conducted among 2,986 people age 16 and older between November 16 and December 21, 2011 and has a margin of error of +/- two percentage points. The post-holiday data come from the combined results of two surveys – one conducted January 5-8 among 1,000 adults age 18 and older and another conducted January 12-15 of 1,008 adults. The combined surveys have a margin of error of +/- 2.4 percentage points.

Who owns tablet computers

% of adults in each group who own a tablet computer

	% of each group who owned a tablet computer in Nov 2010	% of each group who owned a tablet computer in mid-Dec 2011	% of each group who owned a tablet computer in mid-Jan 2012
All adults in the U.S.	**5%**	**10%**	**19%**
Gender			
Male	6	11	19
Female	4	10	19
Race/Ethnicity			
White	4	10	19
African American	4	9	21
Hispanic	7	10	21*
Age			
18-29	6	10	24
30-49	6	14	27
50-64	4	8	15
65+	2	5	7
Education			
Some high school	4	7	5
High school	3	6	15
Some college	4	10	18
College graduate	8	17	31
Household income			
< $30,000	4	4	8
$30,000 - $49,999	3	8	16
$50,000 - $74,999	3	10	20
$75,000+	9	22	36

*Previous surveys included Spanish interviews. The January surveys were only conducted in English.
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The surge in ownership of tablet computers was especially notable among those with higher levels of education and those living in households earning more than $75,000. More than a third of those living in households earning more than $75,000 (36%) now own a tablet computer. And almost a third of those with college educations or higher (31%) own the devices. Additionally, those under age 50 saw a particularly significant leap in tablet ownership.

Who owns e-readers

% of adults in each group who own an e-reader

	% of each group who owned an e-reader in Nov 2010	% of each group who owned an e-reader in mid-Dec 2011	% of each group who owned an e-reader in mid-Jan 2012
All adults in the U.S.	**6%**	**10%**	**19%**
Gender			
Male	6	9	16
Female	6	11	21
Race/Ethnicity			
White	6	12	18
African American	5	5	20
Hispanic	5	6	19*
Age			
18-29	6	7	18
30-49	5	12	24
50-64	9	11	19
65+	4	8	12
Education			
Some high school	5	5	6
High school	4	6	14
Some college	6	12	19
College graduate	8	16	30
Household income			
< $30,000	4	3	8
$30,000 - $49,999	3	9	19
$50,000 - $74,999	6	13	19
$75,000+	12	21	31

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The story with the growth in e-book readers was somewhat different from the story with tablet computers. Ownership of e-readers among women grew more than among men. Those with more education and higher incomes also lead the pack when it comes to e-book ownership, but the gap between them and others isn't as dramatic. For instance, 19% of those in households earning $30,000-$50,000 have e-book readers. They are 12 percentage points behind those in households earning $75,000 or more in e-book reader ownership. The gap between those income levels on tablet ownership is 20 percentage points.

The Pew Internet Project is studying the ownership of both devices as part of its effort to understand how people consume media (text, video, and audio) on the devices, how people use them to access the internet, and how mobile connectivity has affected users. This is part of the Project's larger research agenda supported by a grant from the Bill and Melinda Gates Foundation to look at how these devices are affecting people's relationship with their local libraries, the services those libraries offer, and the general role of libraries in communities.

The pre-holiday survey conducted by the Project contained an oversample of owners of tablet computers and e-book readers. They were asked about their reading habits and their interactions with their libraries related to e-books and other digital content. The results of those findings will be contained in a report that will be released in the coming weeks.

The Pew Research Center's Internet & American Life Project is an initiative of the Pew Research Center, a nonprofit "fact tank" that provides information on the issues, attitudes, and trends shaping America and the world. The Pew Internet Project explores the impact of the internet on children, families, communities, the work place, schools, health care and civic/political life. The Project is nonpartisan and takes no position on policy issues. Support for the Project is provided by The Pew Charitable Trusts. More information is available at www.pewinternet.org

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Methodology for late 2011 survey

The Gates Reading Habits Survey, sponsored by the Pew Research Center's Internet & American Life Project and the Gates Foundation, obtained telephone interviews with a nationally representative sample of 2,986 people ages 16 and older living in the United States. Interviews were conducted via landline (n_{LL}=1,526) and cell phone (n_C=1,460, including 677 without a landline phone). The survey was conducted by Princeton Survey Research Associates International. The interviews were administered in English and Spanish by Princeton Data Source from November 16 to December 21, 2011. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for results based on the complete set of weighted data is ±2.2 percentage points. Results based on the 2,571 internet users have a margin of sampling error of ±2.3 percentage points.

Details on the design, execution and analysis of the survey are discussed below.

DESIGN AND DATA COLLECTION PROCEDURES

Sample Design

A combination of landline and cellular random digit dial (RDD) samples was used to represent all adults in the United States who have access to either a landline or cellular telephone. Both samples were provided by Survey Sampling International, LLC (SSI) according to PSRAI specifications.

Numbers for the landline sample were drawn with equal probabilities from active blocks (area code + exchange + two-digit block number) that contained three or more residential directory listings. The cellular sample was not list-assisted, but was drawn through a systematic sampling from dedicated wireless 100-blocks and shared service 100-blocks with no directory-listed landline numbers.

Contact Procedures

Interviews were conducted from November 16 to December 21, 2011. As many as 7 attempts were made to contact every sampled telephone number. Sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample. Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. Interviewing was spread as evenly as possible across the days in field. Each telephone number was called at least one time during the day in an attempt to complete an interview.

For the landline sample, interviewers asked to speak with the youngest adult male or female currently at home based on a random rotation. If no male/female was available, interviewers asked to speak with the youngest adult of the other gender. This systematic respondent selection technique has been shown to produce samples that closely mirror the population in terms of age and gender when combined with cell interviewing.

For the cellular sample, interviews were conducted with the person who answered the phone. Interviewers verified that the person was an adult and in a safe place before administering the survey. Cellular respondents were offered a post-paid cash reimbursement for their participation.

Calls were made to the landline and cell samples until 1,125 interviews were completed in each. Once those targets were hit, screening for e-book and tablet owners was implemented. During the screening, anyone who did not respond with having an e-book or tablet device was screened-out as ineligible. All others continued the survey until approximately 700 e-Reader/Tablet owners were interviewed overall.

WEIGHTING AND ANALYSIS

The first stage of weighting corrected for the oversampling of tablet and e-reader users via screening from the landline and cell sample frames. The second stage of weighting corrected for different probabilities of selection associated with the number of adults in each household and each respondent's telephone usage patterns.[1] This weighting also adjusts for the overlapping landline and cell sample frames and the relative sizes of each frame and each sample.

This first-stage weight for the i^{th} case can be expressed as:

$$WT_i = \frac{1}{\left(\frac{S_{LL}}{S_{CP}} \times \frac{1}{AD_i}\right)} \quad if\ respondent\ has\ no\ cell\ phone$$

$$WT_i = \frac{1}{\left(\frac{S_{LL}}{S_{CP}} \times \frac{1}{AD_i}\right) + R} \quad if\ respondent\ has\ both\ kinds\ of\ phones$$

$$WT_i = \frac{1}{R} \quad if\ respondent\ has\ no\ land\ line\ phone$$

Where S_{LL} = size of the landline sample
S_{CP} = size of the cell phone sample
AD_i = Number of adults in the household
R = Estimated ratio of the land line sample frame to the cell phone sample frame

The equations can be simplified by plugging in the values for S_{LL} = 1,526 and S_{CP} = 1,460. Additionally, we will estimate of the ratio of the size of landline sample frame to the cell phone sample frame R = 1.03. The final stage of weighting balances sample demographics to population parameters. The sample is balanced to match national population parameters for sex, age, education, race, Hispanic origin, region (U.S. Census definitions), population density, and telephone usage. The Hispanic origin was split out based on nativity; U.S born and non-U.S. born. The White, non-Hispanic subgroup is also balanced on age, education and region. The basic weighting parameters came from a special analysis of the Census Bureau's 2010 Annual Social and Economic Supplement (ASEC) that included all households in the

[1] i.e., whether respondents have only a landline telephone, only a cell phone, or both kinds of telephone.

United States. The population density parameter was derived from Census 2000 data. The cell phone usage parameter came from an analysis of the July-December 2010 National Health Interview Survey.[23]

Weighting was accomplished using Sample Balancing, a special iterative sample weighting program that simultaneously balances the distributions of all variables using a statistical technique called the *Deming Algorithm*. Weights were trimmed to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the national population. Table 1 compares weighted and unweighted sample distributions to population parameters.

Table 1: Sample Demographics

Parameter (16+)		Unweighted	Weighted
Gender			
Male	48.6	47.2	48.9
Female	51.4	52.8	51.1
Age			
16-24	16.0	15.0	14.2
25-34	17.3	14.0	15.1
35-44	17.0	14.9	17.3
45-54	18.7	17.6	18.7
55-64	14.8	17.3	18.5
65+	16.2	21.2	16.2
Education			
Less than HS Graduate	16.8	11.5	15.5
HS Graduate	33.8	26.7	33.3
Some College	23.1	23.3	23.9
College Graduate	26.3	38.5	27.3
Race/Ethnicity			
White/not Hispanic	68.0	73.1	67.7
Black/not Hispanic	11.7	10.8	11.9
Hisp - US born	6.4	6.5	6.8
Hisp - born outside	7.5	4.3	7.3
Other/not Hispanic	6.2	5.3	6.2
Region			
Northeast	18.5	15.8	18.2
Midwest	22.0	24.1	22.7
South	36.9	37.3	37.0

[2] Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December, 2010. National Center for Health Statistics. June 2011.
[3] The phone use parameter used for this 16+ sample is the same as the parameter we use for all 18+ surveys. In other words, no adjustment was made to account for the fact that the target population for this survey is slightly different than a standard 18+ general population survey.

West	22.6	22.7	22.1
County Pop. Density			
1 - Lowest	20.1	23.6	20.3
2	20.0	21.2	20.1
3	20.1	22.3	20.4
4	20.2	17.6	20.2
5 - Highest	19.6	15.2	18.9
Household Phone Use			
LLO	9.3	5.0	8.3
Dual/few, some cell	41.7	51.7	42.3
Dual/most cell	18.5	20.6	19.0
CPO	30.5	22.7	30.5

Effects of Sample Design on Statistical Inference

Post-data collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. PSRAI calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called "design effect" or *deff* represents the loss in statistical efficiency that results from systematic non-response. The total sample design effect for this survey is 1.46.

PSRAI calculates the composite design effect for a sample of size *n*, with each case having a weight, w_i as:

$$deff = \frac{n\sum_{i=1}^{n} w_i^2}{\left(\sum_{i=1}^{n} w_i\right)^2} \qquad \textit{formula 1}$$

In a wide range of situations, the adjusted *standard error* of a statistic should be calculated by multiplying the usual formula by the square root of the design effect (√*deff*). Thus, the formula for computing the 95% confidence interval around a percentage is:

$$\hat{p} \pm \left(\sqrt{deff} \times 1.96 \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \right) \qquad \textit{formula 2}$$

where $\hat{p}$ is the sample estimate and *n* is the unweighted number of sample cases in the group being considered.

The survey's margin of error is the largest 95% confidence interval for any estimated proportion based on the total sample— the one around 50%. For example, the margin of error for the entire sample is ±2.2 percentage points. This means that in 95 out every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 2.2 percentage points away from their true values in the population. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as

respondent selection bias, questionnaire wording and reporting inaccuracy, may contribute additional error of greater or lesser magnitude.

RESPONSE RATE

Table 2 reports the disposition of all sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible respondents in the sample that were ultimately interviewed. At PSRAI it is calculated by taking the product of three component rates:[4]

Contact rate – the proportion of working numbers where a request for interview was made[5]

Cooperation rate – the proportion of contacted numbers where a consent for interview was at least initially obtained, versus those refused

Completion rate – the proportion of initially cooperating and eligible interviews that were completed

Thus the response rate for the landline sample was 14 percent. The response rate for the cellular sample was 11 percent.

Table 2:Sample Disposition

Landline	Cell	
66,518	60,997	Total Numbers Dialed
2,876	919	Non-residential
3,004	142	Computer/Fax
16	----	Cell phone
32,283	22,623	Other not working
3,844	887	Additional projected not working
24,495	36,426	Working numbers
36.8%	59.7%	Working Rate
1,281	296	No Answer / Busy
7,092	13,997	Voice Mail
118	27	Other Non-Contact
16,004	22,106	Contacted numbers
65.3%	60.7%	Contact Rate
902	3,485	Callback
11,408	14,644	Refusal

[4] PSRAI's disposition codes and reporting are consistent with the American Association for Public Opinion Research standards.
[5] PSRAI assumes that 75 percent of cases that result in a constant disposition of "No answer" or "Busy" are actually not working numbers.

3,694	3,977	Cooperating numbers
23.1%	18.0%	Cooperation Rate
104	129	Language Barrier
1,960	2,362	Child's cell phone / Oversample Screenout
1,630	1,486	Eligible numbers
44.1%	37.4%	Eligibility Rate
104	26	Break-off
1,526	1,460	Completes
93.6%	98.3%	Completion Rate
14.1%	10.7%	Response Rate

Methodologies for post-holiday surveys

The PSRAI January 2012 Omnibus Week 1 obtained telephone interviews with a nationally representative sample of 1,000 adults living in the continental United States. Telephone interviews were conducted by landline (600) and cell phone (400, including 184 without a landline phone). The survey was conducted by Princeton Survey Research Associates International (PSRAI). Interviews were done in English by Princeton Data Source from January 5-8, 2012. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is ± 3.9 percentage points.

The PSRAI January 2012 Omnibus Week 2 obtained telephone interviews with a nationally representative sample of 1,008 adults living in the continental United States. Telephone interviews were conducted by landline (604) and cell phone (404, including 194 without a landline phone). The survey was conducted by Princeton Survey Research Associates International (PSRAI). Interviews were done in English by Princeton Data Source from January 12-15, 2012. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is ± 3.8 percentage points.

The margin of error for the combined data is ± 2.4 percentage points.